Arbor Day and Bird Day Issue

BULLETIN TO THE SCHOOLS

March 1943

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THE UNIVERSITY OF THE STATE OF NEW YORK

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FRONT COVER PICTURES:

Left, loveliest of swamp plants, the queen orchid, *Cypripedium hirsutum*, in the Peak Preserve. Photograph by Frederick Houghton. See story on page 247.

Right, a mounted snowy owl, *Nyctea nyctea*, collected near Buffalo. Photograph by Charles E. Simmons, courtesy of the Buffalo Society of Natural Science. See story on page 272.

THE UNIVERSITY OF THE STATE OF NEW YORK
BULLETIN TO THE SCHOOLS

Issued monthly during the school year by the State Education Department

CHARLES F. PROBES, *Editor* A. RANGER TYLER, *Assistant*

This bulletin is sent without charge to all schools and educational institutions of the State. To others it will be mailed postpaid for 50 cents a year, 10 cents for single copies.

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The University of the State of New York

Bulletin to the Schools

VOLUME 29 MARCH 1943 NUMBER 7

Arbor Day and Bird Day

IN THESE BITTER TIMES it is refreshing to turn again to the natural and creative forces in the world as exemplified by the early signs of spring. Trees, flowers and birds have kept their age-old charm; we shall do well to revive the human spirit by searching them out. Now is the time for planting and protecting — for beautifying the immediate countryside.

In *West of Midnight,* the American poet, Paul Engle, gives us a little poem entitled *Four Elms*:

Whoever it was that planted them
A hundred years ago,
Spread roots apart and tamped in earth,
Would now be glad to know
Another man, tree-comforted,
Waits for their leaves to grow.

So close they are to the house wall
He could have had no fear
That worn with winter and the weight
Of every growing year
They might break roof and window down
Before his sleep could hear.

Yet if they should destroy the house
It would not be so wrong:
Three generations now have heard
Branch lifting and bird song.
We take a chance on anything
We want to keep for long.

I have the honor to designate April 16th as Bird Day and April 30th, May 7th or May 14th as Arbor Day in accordance with the convenience of the locality.

George D. Stoddard

Commissioner of Education

GARDENING IN WARTIME

ARTHUR K. GETMAN
Chief, Bureau of Agricultural Education

In wartime the observance of Arbor Day is of special economic significance. The intelligent observance of this day through participating in the nation-wide Victory Garden program may well serve to help pupils and adults alike to discharge their patriotic civic responsibility.

Arbor Day has been designated by law "to encourage the planting, preservation and protection of trees and shrubs." An important part of the Victory Garden program is the maintenance of lawns, shrubs, flowers and other means of beautification wherever possible. In addition the State Victory Garden Council has established the following objectives for the 1943 production season: (1) a garden on every farm, (2) a garden for every city, town and suburban family where practicable and where sufficient open sunny space and suitable soil are available, (3) community gardens in the more densely populated areas, (4) a school garden for school lunch purposes and (5) every possible home food conservation. Thus, gardening has both esthetic and food production values.

School and community Victory Gardens are of vital importance on the home front. Food is as much a weapon as the armaments of war. In spite of last year's unprecedented harvest we are facing at the present time one of the most critical food shortages in American history. Well-planned home, school and community gardens under proper supervision may make substantial contributions to the Nation's food supply. More than 200 kinds of food are now rationed. Canned fruit and vegetables are prominent on all rationing lists. Many families will find that a season's supply of fresh vegetables will make a vital contribution to the health of all their members. Likewise, there are excellent morale values in working out of doors and in keeping the home grounds especially attractive during wartime.

The provision of systematic instruction and supervision for Victory Gardens on the part of school officials will yield substantial results both in food produced and in directing the work experience of pupils. With experienced teachers in charge, seed, fertilizer, spray materials and good land can be conserved. Through the offices of county club agents in each of the rural counties of the State, Victory Garden leaflets are available to the teachers in this program. Instructors in gardening at the Agricultural and Technical Institutes are available through the institute directors for assisting local officials in organizing and maintaining instruction in gardening. Also, teachers of vocational agriculture in more than 340 communities are available to assist in the program.

Many persons will have gardens this year for the first time; others will have larger gardens and will try to have better gardens. Most pupils and adults who have never had a garden before can have a good one this year if they start with a good garden spot, get a reasonable break from the weatherman, have plenty of ambition and stick to the job throughout the season. It is important to have available some good source of gardening information such as those listed below. Do not spade up well-established lawns or tear out shrubbery and perennial flower beds. Because the food shortage may

continue for some time, many persons will want to start perennial small fruits and vegetables now, such as asparagus, berries and grapes.

To make an all-season garden, start early, choose the right crops and make successive plantings to insure fresh produce throughout the season. Keep in mind that the ebb of the tide of human health reaches its lowest point in the spring months before we get our first taste of spring produce. The earlier one can get dandelion greens, rhubarb, asparagus, lettuce and spinach on the table in the spring, the better it will be for the family's health. These foods are vital for rebuilding the body's store of essential vitamins after they have been exhausted during the winter months.

The following list of publications from the State College of Agriculture at Ithaca will be found helpful in organizing the teaching program. Copies are available for one person in each school system:

E498 Growing Raspberries for Home Use (5 cents)

E499 Growing Strawberries for Home Use (5 cents)

E206 The Control of Diseases and Insects Affecting Vegetable Crops (10 cents)

E344 The Home Garden (5 cents)

E448 Starting Vegetable Plants (5 cents)

E476 Varieties of Vegetables (5 cents)

E503 Insect Control in the Vegetable Garden (5 cents)

E507 Disease Control in the Vegetable Garden (5 cents)

E533 The Storage of Fruits and Vegetables for Home Use (5 cents)

SANCTUARIES FOR WILD PLANTS

FREDERICK HOUGHTON M.S.

(See cover illustration of queen orchid)

Moss lake is a pretty little pond resting on a cushion of sphagnum moss. On the wet moss grow numerous plants which thrive in such situations, among them two rarities, the long-leaved sundew and *Lycopodium inundatum*. For three years the owner of the bog has kept a steam shovel busy digging out sphagnum for sale as peat, and presently the bog and its plants will be no more than a pleasant memory.

This sort of thing is happening all over the country. Bogs and swamps are being drained, woods are being cut over, hillsides are being pastured, with the resulting extermination of much of our native flora. Nature lovers deplore this destruction, and a great many have tried in various ways to preserve some, at least, of our native plants, so that in many localities wild flower sanctuaries or wild flower preserves have been created.

These activities have resulted in different kinds of sanctuary. The simplest form, and the commonest, is the back yard wild flower garden in which a plant lover has planted some prized wild flowers in a place where they will not be disturbed.

This preserving of plants by an individual frequently leads to a union of people, who have this interest in common, into an organization whose purpose it is to colonize wild flowers on a larger scale in some place which they can protect.

Photograph by Houghton

Ferns in a Limestone Plot on the Peak Preserve

Two types of sanctuary may result from this organized effort. In one, the organization acquires land where a group of plants already established can be protected. For example, a wild flower preservation society may buy a swamp in

which grow some rare or beautiful plants in danger of extermination.

Another society may buy land upon which its members can colonize plants which they have collected or bought, and which they think should be preserved from destruction. The protection and shelter afforded by both these types of sanctuary attract birds, and both eventually become bird refuges.

Should a sanctuary society include botanists in its membership, its policy is occasionally extended so that plants are not only collected and colonized in protected areas, but they are collected with the definite idea of planting them in a sanctuary according to genera and species, along paths where they may be so labeled that visitors can easily identify them. This constitutes an out-of-doors wild flower museum, where botany can be taught from living plants instead of from a herbarium.

All these types can be found among existing sanctuaries. A few local examples will illustrate them.

Lying between Rochester and Batavia in Genesee county, is a huge swampy area, part of which is known as the Bergen swamp. This is unique in having a growth of sphagnum moss above marl. Equally unique are the plants which grow there, among them being the rare and lovely orchid, the white cypripedium. In order to protect these unusual plants in the natural environment in which alone they thrive, a group of naturalists in Rochester formed the Bergen Swamp Preservation Society which has bought 125 acres of the most interesting portions of the swamp. This area is strictly preserved, and removal of any plants from it is prohibited.

The Nature Sanctuary Society of Western New York, affiliated with the Buffalo Museum of Science, has bought a sphagnum bog of 25 acres north of Springville in Erie county. Practically all the plants native to sphagnum bogs are already growing there, among them arethusa, calopogon, rose pogonia and white-fringed habenaria orchids. Since a few plants which usually grow in such situations are lacking, members of the society are collecting these and colonizing them there, so that the group of bog-loving plants will be complete. For instance, long-leaved sundew and lycopodium, which are being destroyed at Moss lake, have been brought to the bog sanctuary and are growing there. The remoteness of the bog from highways and the difficulty of access attract many birds, so a bird refuge has been established there.

The same society has bought a tract of 87 acres in picturesque Zoar valley in southern Erie county, to which has been given the name of "The William Prindle Alexander Preserve." Cattaraugus creek has cut one side into perpendicular shale cliffs and on another side it has formed wide alluvial "flats" which lead gradually upward to the summit of a high hill. Although it has been pastured for three generations, many plants native to stony hillsides still survive. On the summit stand huge, ancient sugar maples, and on the slopes is a thick growth of large, second growth beech, maple, hemlock and white pine. Reforestation has begun but has been stopped by the war. The wild nature trail has been planned, and we hope that it will be laid out this year. A bird refuge has been established.

The Peak Preserve, west of Springville, overlooking Zoar valley, differs from the others described in being owned by an individual, the writer of this article. It comprises 15 acres of high sand plain,

cut by deep gullies and watered by small but constant brooks. Because nearly every ecological condition exists or can be simulated there, we have been able to colonize representatives of nearly all the species of plants native to western New York and from some other localities. At first, plants were colonized in those parts of the preserve which most nearly resembled their original environments. For several years, however, we have replanted collected plants in small plots each of which has been made to simulate a particular ecological condition.

For instance, Hart's tongue fern and walking-leaf fern do well in a limestone plot. Gillenia, bluets, trailing arbutus and others of that type thrive in a sandstone plot. Small damp areas resemble wet meadows and accommodate lobelias, gentians and such, and plants from the White mountains live happily in plots made of granitic fragments. Because none of the plants is labeled the location falls short of being a wild flower museum.

To find a good example of a wild flower museum we must go farther afield to the Bowman's Hill State Wild Flower Preserve in the Washington Crossing Park near New Hope, Pa. Numerous trails have been laid out there, and a fair representation of the flora of Pennsylvania has been planted along them and marked with labels.

Methods of creating a wild flower sanctuary depend upon whether it is to be created by an individual or by a society, and upon whether it is to be large or small. Simplest of course is the back yard garden sanctuary, but even in this, attention to certain details is necessary. The nature lover who grubs up some plant treasure with his little trowel, lets it ride home in the back of his automobile and next morning shoves it into a hole in his garden is probably less destructive than the steam shovel at Moss lake, because he does not destroy so much.

The details that need attention include those that have to do with digging plants and with the ecological conditions in which plants grow. Dig deeply and carefully. Get out as much of the root system as possible. It is good practice to shake off as much of the soil about the roots as possible. In planting a flower with a ball of roots, usually there remains an air space between the ball and the inclosing soil, and the roots will not pass across this air space. Filling the hole with liquid mud usually closes this space effectually. Fibrous roots should be spread out flat on the bottom of the hole and covered so firmly that no air space is left about the roots. Immediately after digging any plant it should be wrapped in wet moss or damp newspaper. The roots should never be allowed to dry out.

Before digging a plant note carefully the conditions of soil, sunlight and moisture in which it thrives. Most soil is neutral in chemical reaction, but in a limestone country, as at Niagara Falls, it will probably be fairly alkaline, and soil in the southern part of the State among the high hills and in the Adirondack region is apt to be fairly acid. Much failure is due to transplanting from one type of soil to another. If I bring an *Ilex monticola* from the Olean Rock City and plant it hopefully in the neutral sand at the Peak it will die, and if I transplant Hart's tongue fern from the limestone rocks at Owen sound to the Peak it also dies unless I provide the limy soil which it needs. In their new homes in a sanctuary collected plants must have the same conditions of soil, sunlight and moisture that they thrived in originally. This is

the reason for replanting them in small plots in which these different conditions can be simulated.

These details of careful digging and proper replanting must be known and attended to, no matter whether the sanctuary be in a back yard or on an estate, for successful colonizing depends upon them. I have dug bird's-foot violets in Arkansas, and ram's-head orchids in Quebec and have replanted them in the Peak Preserve, where they still grow. Diapensia that I dug on Mount Washington grew and blossomed for two years before it died, to the amazement of our good botanists, one of whom said, "It certainly is diapensia, but I don't believe it." But I have also dug chimaphila and replanted it at the Peak three miles away, where it expired quickly.

When an organization decides to create a sanctuary it has several important matters to attend to. After it has settled upon the type and size of the sanctuary that it thinks it can finance and take care of, it must find a site. A sanctuary which is within the capabilities of a fairly large society should not be so large that it can not be paid for easily and cared for adequately. Four acres of properly qualified land will make a better preserve than 40 acres of abandoned underbrush. It should be large enough, however, to have a patch of woods on it, or at least some trees. The water supply must be ample and easily available, preferably in a small but constant brook big enough to operate a hydraulic ram at least. The soil should be good, easily worked, neutral in reaction and capable of being modified to suit the needs of various types of plant. Remoteness from main roads and difficulty of access are distinct advantages. A popular road through a picturesque valley passes our Alexander Preserve, so it is becoming a favorite stopping place for passing campers and picnic parties. Finding a site with all these qualifications seems impossible but there are plenty of such places and they should be sought out.

After the site has been bought it will be wise to have it planted as soon as possible so that poison ivy, bittersweet, sumac, blackberries and quack grass do not have time to become established. In three years any untended and uncovered land will be blanketed by undesirable weeds of that kind, which will smother any other planting. A proper cover can be made by reforesting with trees suited to that locality. Red pine, white ash, white spruce and sugar maple will grow quickly on upland sites of several kinds, and tamarack and birch will soon cover low spots. Our native viburnums and cornus do well as cover, and in a very short time they will supply food for birds.

Every member of the society should be assigned some definite work to do in the sanctuary. One can plant trees, another can hack out underbrush, a botanist can collect special plants and colonize them in a pocket along a trail, and another can keep a fence in repair. A sanctuary provides a large variety and quantity of work adapted to the interests and abilities of its members.

Whatever the type of sanctuary the society decides upon, it must appreciate that this sort of work and upkeep can not be neglected. Land which is left undisturbed will inevitably revert to natural conditions, and this means that the plant societies which normally are to be found there will eventually take possession. In the competition for occupancy the hardiest or those best adapted to the conditions there, which most of us call

undesirable weeds, will in a very short time overshadow and crowd out those which we wish to preserve. Because our bog sanctuary can not be cultivated or otherwise cared for, the sprawling shrub, leather leaf, will soon crowd out our lovely orchids, our rare sundews and all the other plants which we so much want to preserve.

To prevent outside interference and spoliation the entire sanctuary should be fenced and posted against trespass, and registered as a preserve with the state police and fire wardens.

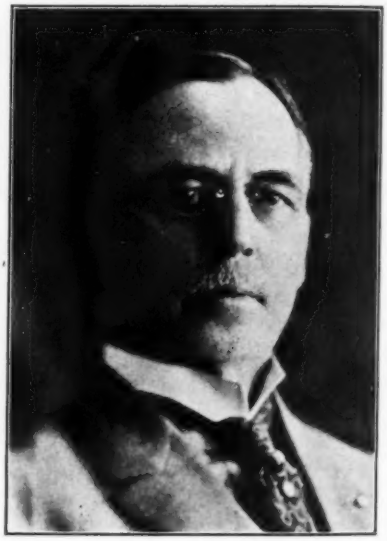
JAMES S. WHIPPLE, FOREST ADMINISTRATOR

RALPH S. HOSMER, PROFESSOR OF FORESTRY, EMERITUS, CORNELL UNIVERSITY

This year the BULLETIN TO THE SCHOOLS adds to its Arbor Day Forestry Honor Roll the name of James Spencer Whipple, from 1905 to 1910 Commissioner of Forest, Fish and Game of the State of New York. Active at a time when the need for forestry was only just beginning to be realized, Mr Whipple was responsible for the inauguration of a number of significant measures which helped establish conservation work as a continuing state activity. He had the imagination to see what was required and the ability to organize that work and get it under way. This is a service for which he is gratefully to be remembered.

Born in Steamburg, Cattaraugus county, October 1, 1854, James Spencer Whipple had a woods background. He saw the forests cut from the hills above the Allegheny river. His father was a lumberman who, dying in the Civil War, left a family of six children who had to shift pretty much for themselves.

At the age of 16 James was in charge of a shingle mill. Later he was employed by the Erie Railroad, first as a switchman, then as ticket agent. Working at night gave him the opportunity to study. This he did to such good advantage that he was able to pass the bar examinations and be admitted to practice. He soon advanced to a position of leadership.



James Spencer Whipple
1854–1941

Mr Whipple's public career began with his election, in turn, to several local offices: coroner, city attorney and, later, member and chairman of the board of supervisors of Cattaraugus county. In 1887 he was elected to the Assembly, where he served four sessions. He was made a member of the judiciary committee. In 1889, as chairman of a committee of the Legislature to investigate the six native Indian Tribes, on seven New York

reservations, he prepared a report — known as the Whipple Report — which is often used in hearings and in court proceedings even to this day.

In 1898 he was chosen clerk of the State Senate, where he served until 1905. In this way he acquired a wealth of political experience and became intimately acquainted with many influential members of both houses. This proved of advantage later, when as commissioner he was seeking the support of the Legislature for bills dealing with forestry and conservation.

Always a forceful and persuasive public speaker, Mr Whipple was employed by the State Republican Committee to take part in political campaigns of several candidates for governor, among them that, in 1904, which resulted in the election of his good friend, Senator Frank W. Higgins. Having in mind Mr Whipple's familiarity with the forest and his keen interest and skill in hunting and fishing, Governor Higgins, in May 1905, appointed him as Commissioner of the Forest, Fish and Game Commission. This position he held until his resignation in the autumn of 1910.

Forty years ago many of the things that are now commonplace in forest administration had not been undertaken anywhere in the United States. Only a few professionally trained foresters had been graduated from the first American schools of forestry. State forestry boards and commissions were staffed by men without technical knowledge of forestry. But a few of them, like Mr Whipple, were men who had become deeply and genuinely interested in this new subject and were willing to work hard for it.

Knowing from experience that protection from fire is the essential first step in the care of the forest, Commissioner Whipple was quick to take action which soon gave to New York State an effective forest fire control system. The years 1903 and 1908 were both bad forest fire years in New York. In the former the losses in the Adirondacks alone had amounted to approximately one million dollars. Taking this as his cue and disregarding precedents, Commissioner Whipple addressed the Legislature personally and secured appropriations which made possible the creation of a paid forest ranger service and the establishment of a network of forest fire lookout stations.

He was also responsible for the top-lopping law — a measure that did much at that time to reduce forest fire hazard in logging operations — and for the law which allows the Governor to close the forests during periods of special forest fire danger. It was Commissioner Whipple, too, who persuaded the Public Service Commission to require that only oil-burning locomotives be used in the Adirondacks, thereby largely removing the risk of railroad-caused fires.

Commissioner Whipple's interest in forestry was by no means confined merely to its protective aspects. He was an unceasing advocate of the forest planting work being done under the direction of Clifford R. Pettis, one of the trained foresters working for the commission. By securing increased appropriations he made possible the expansion of the State's forest tree nurseries so that private land owners could obtain stock for forest planting at cost prices. Following the death of Colonel William F. Fox, long Superintendent of State Forests, Commissioner Whipple appointed Austin Cary, a professional forester, as his successor. A year later, on Mr Cary's resignation in 1910, he advanced Mr Pettis to that position. He also added several other foresters to the commission's staff.

No other conservation commissioner has been as active as a speaker on conservation topics as was Mr Whipple. At a time when moving pictures were still unknown and the lecture was an important means of public instruction, Mr Whipple's addresses, well illustrated by carefully chosen lantern slides, were in great demand. He almost never declined an invitation. Rather, he liked to tell of the number of audiences to which he had spoken. For several years the total of his lectures and talks on conservation subjects approximated 200 a year.

At the Conference of the Governors, called by President Theodore Roosevelt, at the White House in May 1908, when the conservation movement was formally launched, Commissioner Whipple presented the statement from New York State. In 1918 he made a special report to the Senate of New York State on the importance of forest planting.

In addition to his forestry interests Commissioner Whipple never forgot that the body which he headed was the Forest, Fish and Game Commission, or that he also had responsibilities in connection with wild life and its proper management. He initiated the policy of issuing hunting licenses for fees, a measure that ultimately was to lead to establishment of the conservation fund, which now bears the cost of all the fish and game work carried on by the State. During his administration the first game bird farm was started, the output of the state fish hatcheries was materially increased and the enforcement of the game laws was strengthened.

After 1910 Mr Whipple continued to serve the State in other public offices. He was elected a delegate to the Constitutional Convention in 1915. Later for several years he served as attorney for the State Excise Department. In 1921 he was appointed a referee under the workmen's compensation law. By appointment of Governor Alfred E. Smith he became a member of the State Industrial Board in 1927, serving in that post for five years.

For many years Mr Whipple lived in Albany. He died March 31, 1941. He is buried at Salamanca, his former home.

On September 6, 1941, a memorial plaque to Commissioner Whipple, in recognition of his service to the State of New York as an all-round conservationist, was unveiled on the summit of Whiteface mountain. This tribute was sponsored by the New York section of the Society of American Foresters, the local branch of the national organization of professional foresters in the United States. The location is peculiarly appropriate in that Whiteface, one of the high peaks in the Adirondacks, 4872 feet, was the site of one of the first two forest fire observation stations erected at the instance of Commissioner Whipple. The other was on Mount Morris, near Tupper Lake. Because of the Whiteface Memorial highway, that mountain top is visited yearly by thousands of persons who could not otherwise scale its slopes. From the summit one has one of the finest views in the Adirondacks.

The ceremony of dedication was brief, dignified, impressive. In it participated two of Commissioner Whipple's three sons, various officers and members of the New York section and officials of the State Conservation Department. The tablet is a fitting tribute to a man who by word and deed did much to awaken in the people of New York State an understanding and appreciation of the true meaning of conservation.

Adult Great Horned Owl

EXPERIENCES WITH THE GREAT HORNED OWL

DEAN AMADON, AMERICAN MUSEUM OF NATURAL HISTORY

(Photographs by courtesy of American Museum of Natural History)

Although more than 15 years have passed since my first encounter with a wild great horned owl, the experience was so exciting that the details are still clear in my memory. I was returning home through the woods after a visit to the camp where a neighbor was "sugaring off" maple syrup, when a nest in the top of a tall beech tree attracted my attention. Considerable snow yet remained in the woods and it seeemed too early for any bird to be nesting but I walked over and tapped on the trunk with a stick.

To my astonishment a bird as big as a turkey, or so it seemed to my boyish eyes, scrambled over the edge of the nest, hopped awkwardly to a near-by limb and flapped off through the woods. Not far away it stopped, and several crows, which had suddenly appeared, gathered around in a milling group, cawing and scolding at the top of their voices.

I crept forward and saw a large brown bird with a flat face and two tufts of feathers projecting from its head like horns or the ears of a cat. The bird was a great horned owl or "cat owl" as it is called in some sections of New York State. The owl moved on again with an alternately flapping and gliding flight. The crows could "fly circles around it" and one of them swooped down and appeared to strike the owl on the back.

The only bird book available to me at

that time stated that the great horned owl was found only in heavily wooded, sparsely inhabited districts. Hilly Cattaraugus county in western New York, where this experience occurred, hardly answered that description, and I concluded that this individual had probably wandered in from the forest of Pennsylvania. A few days later I again visited the same woods, half expecting to find that the crows had killed the owl or at least driven it away. To my delight the owl was again on the nest.

Beneath the nest I found the head and a few feathers of a crow and concluded that the crows had some reason for their dislike of owls. By climbing the hillside above the tree I could look down into the nest and see in it downy white young owls. I would have liked to have had one of them for a pet, but the smooth trunk of that tall beech defied all my efforts to " shinny " up.

Later I learned that the great horned owl was by no means so rare in that region as I had supposed. At least one was likely to be met with in a half-day's hike through the woods. Other owls were very scarce. During more than ten years of my residence in that part of the State and several later visits, the only other owls observed were about six screech owls and one short-eared owl. Old Bubo, as I like to call the great horned owl, whose scientific name is *Bubo virginianus,* may be partly responsible for the scarcity of other owls. Once I flushed a great horned owl from a hemlock beneath which were the remains of a young screech owl which had evidently had " relative trouble."

Probably one reason for the success of the great horned owl is its adaptability. It will nest in old hawk or crow nests,

Adult Great Horned Owl, Defensive Attitude

in hollow trees, caves, ledges or cliffs, or even on the hay in a deserted barn. Once just at timberline in the Rockies of Wyoming I saw a great horned owl during a snow flurry in early July; yet this species is equally at home in the hottest deserts of southern Arizona, in the swamps of the Gulf states or in the forests of Maine or Canada. In the strictly agricultural sections of New York it is, of course, scarce; yet a pair or two still may be found along the Palisades across the Hudson from New York City.

In many sections of the State the woods are scoured each fall by hunters, few of whom would pass an opportunity for a shot at a great horned owl. This owl is so large that hunters often underestimate the range when they shoot at one; its thick feathers also are fairly impervious to bird shot. As a result many great horned owls are " dusted off " without being seriously injured. An individual

which has had one or two such experiences, like a chicken thief who has been similarly treated with rock salt, becomes very shy. I have followed an owl that was being mobbed by crows for half a day at a time without obtaining more than one or two distant glimpses of it. Regardless of how stealthily an owl in this predicament is approached, one of the crows is sure to give a warning, whereupon the entire flock at once becomes silent. If the stalker remains motionless, usually some of the crows will resume cawing, but in a much less frantic manner. A wary owl seems to take his cue from the crows and flies a few moments after they give such indications of alarm.

Once while conducting a city visitor on a woodchuck hunt we flushed a large great horned owl while we were crossing a hemlock woods. My friend was eager to possess a " stuffed " owl, so we started after the bird, guided as usual by a flock of crows. The owl always perched in thick hemlocks where it was invisible. My companion soon became disgusted and began to take futile wing shots with a rifle. After this had happened twice, the owl, to my astonishment, left the woods, though it was a sunny afternoon, and flew a long distance over open farming country. It alighted on a telephone pole to look around, then proceeded on to another distant woods. The great horned owl is a long-lived bird and it is such wary individuals, probably, that enable the species to persist in localities where it is much persecuted.

Nestling Great Horned Owl

My second nest of the great horned owl also was inaccessible. I visited it one Sunday and could see the young perched on the edge of the nest. The following Thursday they had left and a long search for them was fruitless. When about to leave the woods, it suddenly occurred to me that a querulous, one-syllable cry noticeable in the distance, was like that given by a young great horned owl which I had once seen in a zoo. Upon hastening to the spot, which was at least a quarter of a mile from the nest, I saw the two young owls perched side by side on the top limb of a tree. At first they did not move; then suddenly, to my surprise, both left their perch and fluttered rather helplessly to the ground. The tree in which they were sitting was limbless for the lower 30 feet and it must have required a level flight of at least 20 feet to reach their elevated perch from an adjacent tree. A few rods away a small tree had blown over and lodged in the branches of a larger one. Evidently the young owls had used this natural ladder to get off the ground for on it were the remains of a rabbit which their parents had fed them. Some parent birds are known to " coax " their young to secure places and it seems very doubtful whether these young owls could have reached the perch where they rested without such aid from their parents.

I took the young owls home and kept them in an old shed. Although treated kindly, they became more and more vicious. When my father or I entered the building the owls would fly around our head so menacingly that we usually carried a piece of board to protect ourselves. They were fed on starlings and English sparrows supplied by a young friend, now a sharpshooter in the Army. When the owls were hungry, they would gulp down eight or ten sparrows in a few moments. If presented with a large dead woodchuck, however, they were helpless, and even when they were very hungry would not eat it until part of the skin had been removed. On the other hand, an adult red-tailed hawk, which I had found in the woods with a broken wing, surprised me by his ability to dismember even the toughest old 'chuck with ease. It would be interesting to learn whether a great horned owl caught as an adult would react more capably if given a dead woodchuck.

One night in August the two young owls escaped. About two weeks later a stranger brought me a dead owl to "stuff;" he had shot the bird about a half-mile from our place. I immediately recognized it as one of the escaped captives. A full-grown grackle was in the owl's crop. I had never given the owl live prey, and they certainly had been incapable of catching it at the time they were taken captive, yet this individual had learned to forage for itself without previous experience.

Such occurrences as the above have made the great horned owl one of my favorite birds. Its large size, unpredictable behavior and ability to cope successfully with such diverse difficulties as hunters or the rigors of a northern winter make this species of unusual interest to the naturalist. Rarely is this owl abundant enough to produce a noticeable decrease in the numbers of crows, rats, rabbits or other common animals upon which it usually lives. Surely the great horned owl deserves sufficient protection to insure it a permanent place in the bird life of New York State.

HAWK FLYWAYS

GEORGE D. RUBY, FAYETTEVILLE

About 8 o'clock on the morning of September 14, 1936, while on a business trip by automobile, I witnessed a most unusual and striking display of avian gracefulness and strength. As I passed along a road near Lower South bay on Oneida lake, I was attracted by a familiar pewee-like call from above. Glancing upward I could hardly believe my eyes.

There above me was a circling flock of 47 broad-winged hawks. Then as my binoculars swept ahead of that group of birds, I saw about an eighth of a mile away another flock of 29 individuals. When I glanced straight up again, in another minute, there was still a third flock of 62. Thus was my attention almost continually occupied in that one spot for an hour and a quarter.

At first I tried to keep an accurate count of all individuals. That soon became too great a task, however. There

was insufficient time to examine those beautiful hawks for chance members of other species. The groups ran from 20 to 73 individuals. They seemed to average about 40. Therefore after the first ten minutes only the number of flocks was counted. There were 34 flocks which soared over during that hour and a quarter. Thus about 1360 individuals comprised the lot observed by me.

The flight was heaviest during the first three-quarters of an hour and the last quarter of an hour of the observation period.

Most of the birds were flying very low, evidently because the ground-wind was fairly strong and carried them along well. The majority were circling and spreading their short fan-shaped tails. Some groups, however, were flying straight as though intent to catch up with others.

The flight appeared to be made up of a high percentage of immature birds. They looked like small editions of our familiar red-tailed hawk but they did not have the broad, equally proportioned black and white tail-bars of the older birds.

In vain did I search for other species of hawks flying with the broad-wings. While they were passing, however, a Cooper's hawk and a red-tailed hawk did appear. Neither bird moved far from that vicinity.

Weather is an important consideration with migrating hawks. That day was clear and warm. The wind was easterly and had a velocity of about 20 miles an hour. Storms frequently precede such mass migrations. Two days before there were rather widely spread rainstorms.

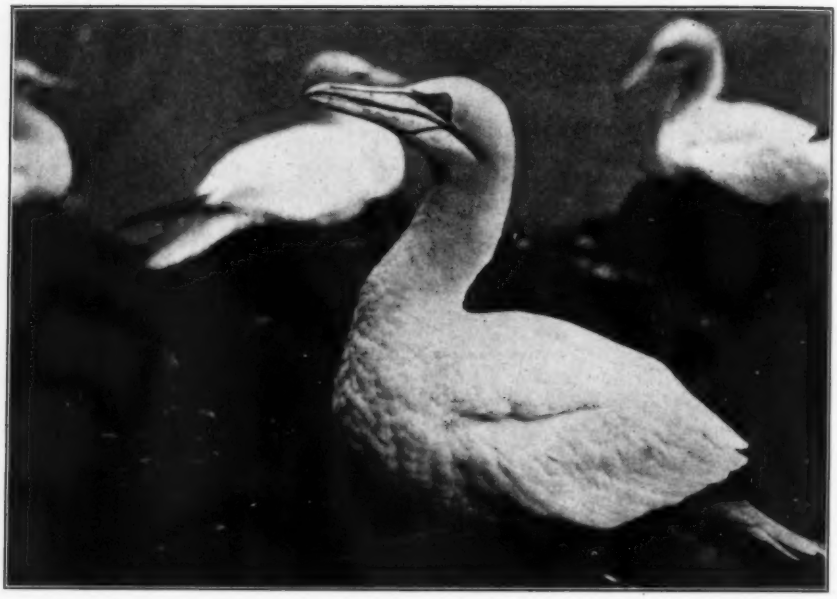
At 10.45 a. m. when I returned to the same spot, the flight was still on at a high altitude but was then much reduced in intensity. During the next three-quarters of an hour I counted only 223 broad-winged hawks. I believe that in all I actually saw about 1600 of those birds.

By following a small flock of six hawks and zigzagging along back roads in my car I determined that they were proceeding south-southwestward. They flew from Lower South bay across the Cowaselon Creek marsh to the vicinity of Quality hill. Then they turned west-southwest along the general line of U. S. Route 5 to a point between Sullivan and Chittenango. There I lost sight of them. It appeared that they were following along the edge of the ridge which forms the beginning of a very hilly region of Madison county to the south of Chittenango.

One noteworthy feature was that, at Oneida lake, the hawks were obviously proceeding directly along the eastern end of that body of water. As soon as they rounded the southeastern corner of the lake they immediately shifted to a more westerly course. This is in line with many observations that some species of birds avoid flying over large expanses of water.

Such a sizeable migratory movement gives rise to the question as to whether there is a definite hawk flyway through central New York or whether this particular flight was just a freak occurrence. Investigations made since reveal that at least a small number of these highly beneficial broad-winged hawks pass through that vicinity each mid-September. My limited time for observation gives me no basis for a valid conclusion.

Possibly you can contribute to the general knowledge on this subject about which ornithologists and bird-lovers are anxious to know more.



Gannets Fish off Long Island's Shores

BIRDS OF SEA, SAND AND SKY

JOHN J. ELLIOTT, SEAFORD, L. I.

(*Photographs by the author*)

The greater part of Long Island's south shore fronting the ocean is a great barrier beach. Between the protecting sandbars and dunes of this outer beach and the main part of Long Island lie large areas of marshland, marsh islands, bays and coves. The barrier beach, a long sandy strip stretching from Brooklyn to the Hamptons, is not continuous but divided into islands by inlets running into the sheltered waters of the bays.

The area to be described is the island between Jones and Fire Island inlets, the entire length, roughly 18 miles, known as Jones beach.

Eastward along the ocean from Coney Island through the Rockaways, large resorts and boardwalks cover almost every available foot of sand. Atlantic Beach, Long Beach and Lido are almost as congested, and it is not until the turbulent waters of Jones inlet are crossed that Nature takes almost complete control, thanks to the efforts of the Long Island State Park Commission. The long stretches of Jones beach contain only three small huddled localities besides a few houses east of the sanctuary pond.

The only other occupied area contains no residences or overnight facilities, but is known as a great recreation center and is situated near the large brick water tower. Splendid pine groves and tall shrubbery concealing the low bathhouses,

amusement places and administration buildings are a credit to the park commission in this area, visited by many thousands of people in normal times but now subject to severe wartime restrictions.

Many birds nest throughout this area, including numerous robins, catbirds, thrashers, yellow warblers, northern yellowthroats, chipping and song sparrows. Often, the sneaky cowbird lays an egg here and there, leaving her big gray youngsters for some foster parents, usually smaller than herself, to raise.

In this area, five years ago, I found a three-story yellow warbler's nest with the two lower levels containing mixed eggs with one of the cowbird in each. Let us hope the third nesting was successful for the warblers. Within the past five years prairie horned larks have entered the region as breeding birds, and they hollow their nests in the ground, usually along the grassy strips bordering the causeways. They make an attractive addition to the bird life with the male soaring skyward singing his twittering song, and when almost out of sight dropping headlong to earth, recovering himself at the last moment and alighting near his mate.

In the near-by marshes bitterns, black ducks, clapper and Virginia rails nest, and the first New York state record for the nesting of the black rail was reported at Oak beach (located on the eastern end of Jones beach) about five years ago. Among the song birds nesting in the marshes we find commonly: long-billed marsh wrens, meadow larks, red-winged blackbirds, sharp-tailed and seaside sparrows. Throughout the sandy locations in the summer the sweet, whistled *peep-lo* of the piping plover and the more energetic *pect-weet* of the spotted sandpiper may be heard, intermingled with the shrill

Black Skimmers Fly Low over the Shell-strewn Beach

cries of the least terns and the harsh *tee-aar* of the common terns. The two latter nest in colonies and they dash downward at the intruder as long as their precious eggs, laid in shallow depressions in the shell-strewn sand, are in danger. In the large tern colony, located just west of Oak beach, there are usually a few breeding black skimmers, which, upon being disturbed, tirelessly circle the nesting grounds, calling hoarsely as they follow each other low over the sand on slowly beating wings. The last nesting species to be mentioned is the Savannah sparrow. The birds sing from the tops of the tall weeds and nest in the sandy areas covered with thick grass.

In the spring and fall, great numbers of migrating birds visit the pine areas near the brick water tower, and sometimes small numbers of song birds are found dead at the foot of the tower, having struck it during the night. Occasionally

barn owls are found in the tops of the pines, and in the thick concealment of the lower branches the tame little saw-whet owl may eye one curiously, and if quietly watched often closes its eyes sleepily, apparently disregarding the intruder. In these pines is also to be found one of the very few wintering flocks of red-breasted nuthatches on Long Island.

The mellow whistling of thousands of American, surf and white-winged scoters, as they blacken the ocean in rafts a mile long, may be heard in April. Occasionally a beautiful harlequin duck may be observed in the scoter flocks. Scaup, goldeneye and red-breasted mergansers fly along the ocean in winter, while on the sanctuary pond many species of freshwater ducks appear in spring and fall. The gadwall, European teal, shoveler, redhead, ring-necked and canvas-backed ducks are among the rarer ones found. Sometimes a snow goose or the much rarer blue goose may be seen along the muddy edges, or near the center of the pond, the partly submerged form of a whistling swan searching for food.

Bayberries Are a Favorite Food of the Myrtle Warbler

Common and red-throated loons, horned grebes and the rarer Holboell's grebe migrate along the coast. Great, white, black wing-tipped gannets, from Bonaventure and other northern islands, may be observed through binoculars, fishing a mile off shore and plunging into the ocean with great force. Sudsy foam leaps high as they disappear from sight and capture the finny tribes in their own element.

Migrating Canada geese drop in from great heights, and double-crested cormorants continue past, several thousand in a day at the height of their spring migration and in stringy formations of up to 600 or more birds. Gulls are plentiful, and on October 30, 1939, I found a lesser black-backed gull, a very rare gull in America and the first record for Jones beach. Alcids are rare in the area, the dovekie being the most commonly reported. Oiled birds are scarce with only a few gulls and ducks observed.

July brings the great flocks of shore birds. The wild cries of the yellowlegs and willets and the steady prodding in the mud by the long bills of the dowitchers are the most characteristic features. Curlews and godwits are fairly regular, phalaropes drop in for a visit and even the rare curly sandpiper has been reported more than half a dozen times in the past few years.

Out of 27 tree swallows remaining through the 1937–38 winter, 19 survived, their sustenance chiefly bayberries. Myrtle warblers, wintering regularly, also feed on bayberries but in late winter turn to

the abundant poison ivy berries, eating these in considerable numbers and continuing to do so as late as May 13th.

When the war is over, come to this land of sea, sand and sky; of pines, dunes, marshes and brush, and search out its secrets for yourself. See the thundering surf on the gleaming sand; tiny balls of down as baby terns and piping plovers; great rough-legged hawks hovering kingfisher-fashion over the marshes; the pale Ipswich sparrow peering from behind a beachgrass clump; sharp-tailed and seaside sparrows disappearing like mice beneath the winter-matted marsh grass; falcons snatching a meal out of the sky and the large, white wing-patches of snow buntings flashing in the sunlight. Such observations and many others await you along with many golden hours, in this, one of Nature's favorite realms on the south shore of Long Island.

A FISHERMAN'S FLY-CATCHING COMPANION

ROBERT E. HALE, MALONE

Cedar waxwings were unusually plentiful during the summer of 1942 at Lake Titus about ten miles south of Malone in Franklin county. Small groups of the birds, each apparently with its own "hunting ground," were seen all around the lake. Each flock seemed to remain within a rather sharply defined area.

On the evening of August 5, 1942, while fishing on this lake where I have a summer camp, an experience so unique and interesting occurred that, for the moment, angling became a secondary matter. At that time, about 7.30 p. m. or possibly a bit later, a fairly good hatch of large flies was issuing in flight from the waters of the lake. The insects resembled May flies and undoubtedly at least some of those insects were included in this flight for they had been hatching very late that season. A flock of cedar waxwings numbering eight or ten individuals was busily engaged in picking the insects out of the air as they arose from the water.

While I was anchoring my boat about 50 feet away from another boat that had just arrived at the inlet, a friend in that boat called my attention to a waxwing perched on the tip of my fly rod which was in a half-vertical position behind me in the boat. The bird remained perched there until it saw a fly then darted out to seize the insect. On a few previous occasions I had observed similar behavior on the part of the cedar waxwing so, while the present observation was of interest, it was not particularly surprising to me.

Shortly thereafter, however, I was really startled when, with a snap of its bill a waxwing picked a May fly out of the air not three feet from my face. This bird — the same one was the "star" for the entire "show" —then flew over to the other boat and perched on a rod there. In a moment it was back on my rod. This performance was continued for several minutes.

Then the bird, evidently being disposed to experiment a bit, perched on the hat worn by my friend sitting in his boat. Soon thereafter it perched on my own hat and later selected the bare head of the second occupant of my friend's boat several times as a perch. This procedure

continued until it was too dark for the birds to feed. The waxwing became so accustomed to perch on us that sometimes it would alight on our rods while we were actually casting with them. Of course at such times we halted our cast long enough to permit the bird a chance to locate the next tid-bit. After the waxwing had become accustomed to alight on us it occasionally remained perched upon our hats while we cast.

I had fished at this inlet almost every night for more than a month and on each occasion had seen the waxwings taking their fill of whatever insects happened to be in the air. Up to the time of the above episode, however, no bird had come so close to any of us. Seldom did less than ten feet separate the waxwings from the fishermen even when the birds were in pursuit of a flying insect. The sudden friendliness which the one bird displayed was, therefore, entirely unanticipated and a most entertaining experience.

One evening the waxwing attempted to cling to my fishline between the tip of the rod and the water. The bird slid down the line, fluttered back up a way, slid down again and finally after several more vain attempts made his way to the tip of the rod and assumed his usual position there.

Perhaps it should be mentioned that for about a week our congenial waxwing continued to make itself at home on my own and other fishing rods, hats and boats. Indeed, this behavior continued until the birds disappeared from this particular shore line coincident with the waning of hatches of the large May flies and associated insects on which they had fed. The last two evenings that I was privileged to entertain the fly-catching waxwing it was accompanied by another individual that made itself at home on my fishing rod. The newcomer evidently was a bird of the year and never attained the confidence in my friendship that had characterized the first bird.

An attempt was made to find out whether the friendly waxwing would take ripe choke and pin cherries from the crown of a hat. Unfortunately this was done about the time the birds ceased their over-water activities and they did not return. It would have been interesting to have established a feeding table in our hats with our two leading waxwing performers first partaking; it is possible that later other members of the group might have followed their lead.

WOOD IN THE FRONT LINES

"The importance of forests and their products in the present global war is very great," says Professor Raymond J. Hoyle of the New York State College of Forestry, Syracuse University.

Wood is being adapted to such war purposes as camps, trucks, wharves, pontoon bridges, piles, poles, props, ties, lockers, ships, airplanes and other implements of war; shipping containers for munitions, cellulose and wood flour for explosives, turpentine for flame throwers, rosin for shrapnel, charcoal for gas masks and steel manufacture solvents for photographic films, shatterproof glass, gun cotton, engine fuel, wrappings, surgical dressings, artificial cotton and wool for clothing, textiles and parachutes.

BIRD MUSIC

EDMUND J. SAWYER

(See picture of wood pewee, inside back cover)

The " territory " theory of birds' songs has long, not to say too long, enjoyed that peculiar overemphasis which attaches to all fresh theories which by any chance spring into popularity. That emphasis must greatly subside from the first feverish acceptance of the theory before the latter can settle into its final, properly limited place. At present it is still regarded as smart to think and write of birds " establishing their territories " in stereotyped terms and with the glib off-hand certainty of things taken for granted and fully understood by all.

Picture by Edmund J. Sawyer
Brown Thrasher

Every observant student of birds in the field must have noticed endless evidences of jealousy, vocal and otherwise, on the part of birds regarding the neighborhood of their homes. Of course, Nature is practical or nothing. She always has an iron in the fire. Unquestionably she has a purpose in the songs of every bird. Nor is that purpose, or any part of it, to give pleasure to man. For all that, those particular thrushes and thrashers and warblers, vireos and wrens which I happen to have seen and heard — they have so refreshing and intriguing a way of shouting " Keep off the grass! " that one wonders why Nature, so capable of plain speaking — should in their cases expend such endless and elaborate poetry of sound for so utilitarian a message.

I do not mind in the least that the bob-o-link, the field sparrow and the meadow lark imply in their notes that when better songs or even as good, are sung in their particular bailiwicks they'll do the singing, please; that I have always observed. But I do mind being told that a bird student must above all else be a statistician, that it is silly to find music in the song of a bird until and unless I first claim to know how it may be expressed exactly in terms of economics and illustrated by graphs. I am a serious student of bird life; but, attending the woodland vespers of the hermit or the veery, or wrapt in the wood pewee's benediction as night settles on the maple grove — a message that outlives the going down of the sun — I must confess that " territory " doctrine is one I can not swallow — for the lump in my throat.

Photograph by Dayton Stoner

Austrian Pine in Washington Park, Albany. Each Spring the Sapsuckers Chisel Out New Drillings for Their Favorite Food.

Photograph by Dayton Stoner

Unsightly Streaks and Splotches of Exuded Resin Mar the Beauty of This Austrian Pine in Washington Park, Albany

YELLOW-BELLIED SAPSUCKER, TREE TROUBLER

DAYTON STONER, STATE ZOOLOGIST, NEW YORK STATE MUSEUM

Twenty-two species of woodpeckers occur in the United States; of these, nine species have been recorded for New York State. In recognition of their principal food item and of their method of obtaining it, two species, including six subspecies, of North American woodpeckers are designated as sapsuckers. One of these, the yellow-bellied sapsucker (*Sphyrapicus v. varius*), is found in this State.

This sapsucker is at once the most widely distributed, the most highly migratory and the most destructive of all our woodpeckers. It occurs across southern Canada and throughout the United States from east to west and north to south; in much of this territory, save for the southeastern states, it breeds. During the winter it is to be found from about the southern limit of its breeding area south to Mexico, Cuba and Central America.

In New York State the yellow-bellied sapsucker is essentially a migrant, although an occasional individual may be found in midwinter in the Long Island region and perhaps elsewhere among the southern counties. Usually the first spring arrivals appear in the Albany area the first week in April; my own earliest date is March 23, 1935. Seldom is the bird seen here after November 1st, although my latest local autumn date for it is November 12, 1939.

First to arrive in the spring are the males, distinguished by the red forehead and throat and black breast-patch. Only the sapsuckers enjoy this distinctive combination and arrangement of colors. They often take up feeding stations on a group of trees and resort regularly to them.

Photograph by Guy A. Bailey — Courtesy Bureau of Radio and Visual Aids

Male Yellow-bellied Sapsucker

Ten to 12 days later the females come along. In coloration they are similar to the males save that the throat is *white* and the under parts are not so strongly suffused with yellow.

Now begins a series of mating antics most vigorously participated in by the males. These activities consist principally in short, rushing flights and in various forms of energetic bowing and attitudinizing, all of which are accompanied by a variety of peculiar sounds, some of which may be described as mewing, squealing or whining. Sometimes also, drumming is practised similar to that exhibited by the flicker and other woodpeckers.

In New York State the yellow-bellied sapsucker is most common in the Adirondack and Catskill regions during summer.

Photograph by Dayton Stoner

The Yellow-bellied Sapsucker Often Works Close to the Scene of Human Activities

It usually excavates its nest hole in a large dead tree, often near water. Both sexes take part in this work. The average excavation is about 14 inches deep with an entrance hole about 1½ inches in diameter and 10 to 40 feet above the ground. Birch, elm, poplar and beech are frequently utilized as nest trees. As with all hole-nesting species of birds, the eggs of this sapsucker are white; the usual complement varies from four to seven and the height of the egg-laying season extends from May 15th to June 15th.

All woodpeckers drill more or less in trees and other plants for their food. To this end their feet, tail-feathers, bill and tongue are highly modified or specialized. Contrary to the situation which prevails in mammals, including man, the tongue of birds is more or less hard and horny and contains few taste buds. The tongue of most woodpeckers is very extensile, horny and barbed at the tip and is used as a spear to capture wood-boring insects which have been exposed through the chiseling action of the hard bill. The sapsuckers, however, have short, brushy, only slightly extensile tongues fitted for lapping up the sap that has exuded from the drillings made in trees or shrubs. They thus constitute the so-called "brush-tongued woodpeckers" which feed principally upon the sap and cambium or inner bark of trees and to some extent also upon the small insects attracted to the slowly issuing sap.

More than 275 kinds of trees and shrubs as well as a half-dozen kinds of vines are known to be attacked by the yellow-bellied sapsucker in its quest for food. The first visible results of these workings take the form of small, squarish or elliptical drillings, usually in linear horizontal as well as vertical series and often so close together as to form patches or areas of considerable size. Both the trunk and the limbs of trees may be drilled. Not only do the punctures cause the trees to "bleed" unduly, thereby reducing their resistance, but such openings invite outbreaks of fungous growths and damage from insects, while, in addition, the commercial value of the tree for lumber may be reduced or completely lost.

The trees most frequently visited by the yellow-bellied sapsucker are the cone-bearing forms belonging to the family Pinaceae. Forty-two of the 90 native species of pines, together with four introduced species, suffer from the depredations of this bird. To the ill effects of sapsucker drillings just mentioned for trees in general is the additional objectionable feature among the pines of the sometimes considerable and unsightly exudations of resin. Since many of the

Photograph by Dayton Stoner

"Band" of Punctures Made on Hemlock Tree by Yellow-bellied Sapsucker. Cleveland, N. Y., May 1942

Pinaceae are planted as ornamentals in parks and about homes this item is worthy of consideration.

As many persons who have visited Washington Park in Albany well know, a number of Austrian pines have been planted there for the shade and visual enjoyment they provide. Unfortunately this species of pine appears to be particularly attractive to the yellow-bellied sapsucker. And most of these pines in the park bear mute evidence of the bird's nefarious work in the form of great white excrescences and streaks of hardened resin and the gnarled, deformed appearance of the upper trunk.

One of the most interesting examples of the work of the yellow-bellied sapsucker that I have seen in this State came to my attention in late May 1941, in the village of Cleveland on the north side of Oneida lake.

The particular object of the bird's attack was a hemlock tree about 18 inches in diameter, growing on the small front lawn of a residence, four feet from a much traveled cement sidewalk and 25 feet from the busy main street thoroughfare. The area of attack, curiously enough, was on that part of the tree trunk nearest the sidewalk. It began 34 inches above the ground and extended as a broad band in a vertical direction for 26 inches. Not all the area was uniformly punctured; a narrow strip

Photograph by Dayton Stoner

The Characteristic Drillings Are Done with Symmetrical Precision in Both Vertical and Horizontal Lines. The Punctures Theinselves Are Squarish or Eliptical.

three or four inches in width and extending from top to bottom of the band was most heavily drilled.

The holes were all single punctures and exhibited the uniform spacing and shape so typical of the work of this bird. They were arranged in partial rings around the tree trunk but a vertical spacing also was apparent. Most of the holes were elliptical in outline with their long diameter across the trunk. They had been drilled through the bark and cambium and a little into the wood itself. From them the lifeblood of the tree, the pale yellowish sap, had exuded and in some places partly hardened.

The progress of this drilling had been noted with trepidation by the owner of the property for several days. Finally, in a desperate attempt to discourage or suppress the bird's visits, she lay in wait for the unsuspecting sapsucker with a bed sheet. Determination was in her heart. When the sapsucker finally appeared, she cautiously approached the busily engaged driller from the opposite side of the tree; then with a tremendous swish cast the sheet about the bird. For a little time it remained encased in the ample folds of the sheet but within a few seconds it escaped — not to return again and the desired end was accomplished.

Many persons believe that *all* birds are beneficial or at least neutral in their economic relations with man. Indeed, a large proportion of our feathered friends, including the woodpeckers as a group, do fall into that desirable category. Nonetheless, the yellow-bellied sapsucker scarcely meets these qualifications. But, lest the reader should suspect from the preceding discussion that this bird is an unqualified miscreant — few animals can be accorded such status in the life scale — it may be appropriate, without bias or malice, to render a summarizing statement of appraisal of the sapsucker's economic status.

On the debit side of its ledger are its drilling, sap-drinking and cambium-eating habits with associated damage in weakening and rendering liable to disease and insect attack numerous kinds of fruit, forest, shade and ornamental trees. Commercial loss in lumber and other forest products also is thereby occasioned. As a matter of fact, local suppressive measures to control or discourage sapsucker injury may be desirable and are often successful. On first notice of such work the injured areas may be wrapped with tape or burlap. And for still better protection powdered sulphur may be worked into the burlap.

On the credit side of the sapsucker's ledger are the destructive or neutral insects — from man's standpoint — which it destroys. Most of these are ants. It should be remembered, too, that the nestlings are fed to some extent upon insects and that some restitution for whatever damage the species may do to forests in the nesting area is thereby made. Moreover, the bird partakes of a considerable and varied diet of wild fruits and berries; in consequence of this it provides a degree of reforestation in burned-over areas. And, from the esthetic viewpoint, the yellow-bellied sapsucker displays a certain avian beauty, dignity and energy that would be missed in our orchards, parks and woodlands were it entirely lacking.

So many of our other birds are so highly beneficial that perhaps we can afford to be charitable in our appraisal of the yellow-bellied sapsucker and the few other bird species which together constitute a minority group with undesirable economic tendencies.

Photograph by A. T. Beals

A Banded Olive-backed Thrush

ON CHOOSING A WILD LIFE HOBBY

CHARLES J. SPIKER, BRANCHPORT

It has always seemed to me that a hobby based on any of the various phases of nature study may develop in three directions: one builds up his own knowledge of the subject; he has an opportunity to add to the accumulated knowledge concerning it, and he may specialize in some particular branch of the subject that will be of benefit to the world.

Many boys and girls have begun in their school days a study of plants, birds, animals or insects that has been a continuous source of fascination and pleasure throughout their lives. A few years' pursuit of any one of these hobbies in a given community is likely to have the result that in time you will know more about that particular branch of nature study than any one else in the locality.

As time goes on you may discover in the general knowledge you have gained a starting point for the investigation of some special point of interest that has arisen. If one is interested in birds, for example, his first efforts are likely to be confined to finding out what species are present in his community and keeping a private check list of those that are to be found within the space of a single year. Later one's interest may settle on a study of nesting habits, a study of migration by the means of banding of birds, or a family of a single species of bird may be singled out for a study of its life history.

In the prosecution of such investigations the student will learn about other persons who are interested in the same things and there will follow the discovery of organizations of people who desire to make a permanent record of their findings by establishing magazines or journals for the publication of such information. The

following example will illustrate this:

I have a friend who has for many years been the proprietor of a general store in a small village. The plant life of his region has been his hobby for many years, with interest in birds running it a close second. Some years ago botanists in various parts of the United States engaged in a friendly dispute over the exact identification of certain species of wild lilies growing in their respective regions. My storekeeper friend became interested, and quietly sent to different parts of the country for bulbs of these wild lilies, which he grew side by side in the garden back of his house. His study covered a period of several years until he was able to announce definitely that the several species of lilies under discussion were separate and distinct species. His findings were published, accompanied by drawings and photographs, in the proceedings of a scientific society to which he belonged and he received many congratulatory messages from botanists in all parts of the country.

I can also show how the specialization in a nature hobby may be of benefit to a great number of persons. Another acquaintance of some years ago spent 25 years of his life as clerk and later cashier of a bank in a fair-sized city in southern Minnesota. He early became interested in the study of insects as a hobby and gradually settled upon a few species of insects that were injurious to crops in his area. He began to work out successful ways of controlling such pests, with the result that he finally was persuaded to give up his position in the bank and work for the United States Department of Agriculture. He was sent to Sioux City, Iowa, provided with a laboratory and he spent the rest of his life visiting areas in Iowa, Minnesota, South Dakota and Nebraska, which were infested with certain destructive insects, and instructing farmers and farm bureau agents in methods of eradicating them.

So I would counsel school boys and girls to refrain from viewing a wild life hobby lightly. It may be followed, of course, purely for the pleasure such an interest arouses, but in addition to that I would ask you to think of it as a possible means of increasing the world's knowledge and to regard it as an opportunity for service to others.

THE SNOWY VISITOR

ALBERT R. SHADLE, BIOLOGY DEPARTMENT, UNIVERSITY OF BUFFALO

(See cover illustration of snowy owl)

Most of the birds that had been with us during the summer had disappeared, for they had gone south to spend several months in a more hospitable climate where food is more abundant than it is here in New York State during the winter months. The resident winter birds were common and from time to time their calls were heard. It was late November and for several days heavy northwest winds had lashed the Great Lakes and brought a light fall of snow.

The day before Thanksgiving 1942, a visitor, the snowy owl from " Santa Claus Land " arrived to spend some time with us. We did not know that he was coming

and were a little surprised to look out the window and see him fly up and perch upon a tall post. He has now spent several weeks with us and we hope that he will stay all winter. Since you will want to be able to recognize any of his friends and neighbors who may have come along with him on this visit in New York State, I shall describe him so that you will be able to recognize a snowy owl when you see one in your part of the State.

The snowy owl is a big white bird with a large round head, a black, sharp, hooked bill and large yellow eyes set in two round disks of white feathers which form his face. Unlike the common owls, the snowy owl does not have those feather ear-tufts which look like little horns. Instead of the plumage being perfectly white, the feathers are more or less marked with dusky blotches or bars. The adult males are usually smaller than the females, and the females and young of the year are usually more generously covered with the dusky markings. The feet and legs are well covered with feathers which protect them from the cold. The toes end in long sharp talons, which hold firmly any prey that they strike. The black, strongly hooked beak serves as an excellent structure for taking food or for a weapon of defense. The big yellow eyes are very keen of vision. These birds live up in the far north, where they nest on the ground and lay from three to ten eggs in a clutch.

In that region the owls feed upon other animals, such as lemmings, mice, small birds, occasional rabbits, water fowl etc. Their main food consists of small rodents, or gnawing animals, and when very hungry or pressed for food, they may attack the larger forms, such as rabbits, ptarmigans, ducks etc. These snowy owls hunt by day as well as during dusk and dawn and sometimes at night. You will remember that in the far north region the sun may shine 24 hours a day for sometime during the summer and at a later period in the winter, there will be no sun at all during the 24 hours of the day.

It is well known that the mammals, that is, the hairy animals upon which the snowy owl depends chiefly for food, are not uniformly abundant each year. They increase in numbers for several years until they reach a high population, then disease, starvation or other cause brings death and destruction to these animals until they become very few. During the years when the lemmings and mice are abundant, there is plenty of food for the snowy owls, so they raise large families and they too become very numerous. When the lemmings, mice and other small mammals become scarce, many of the owls may either migrate to regions where food is plentiful or die of starvation. It is during these years of want and privation that the snowy owl migrates into southern and eastern Canada and on down into the United States. In some years several thousands of these beautiful, big birds may invade the United States in search of food. At these times many of them visit New York State, where they feed in the woods, fields and marshes on mice, rats and other destructive animals.

We can look upon these beautiful birds as distinctly beneficial forms that are helping to control animals which destroy man's food and other valuable materials. While occasional birds are eaten they form only a small part of the snowy owl's subsistence.

Instead of allowing people to kill these beautiful visitors when they come to our State, let us each try to protect them from

those who would destroy the birds just because they are uncommon in this region or because they are considered a desirable trophy. When we ourselves understand how valuable the snowy owls are in the control of destructive rodents, it will not be difficult to convince other people that they too should aid in protecting these predators. When we aid the snowy owl during his stay with us, we certainly are "helping a friend in need," for hunger has driven him from his homeland and he aids in protecting our crops, food etc. from destruction.

RANDOM NOTES FROM A BIRD-BANDER

VERNON HASKINS, EAST DURHAM

(Photograph by the author)

After 18 years of bird banding, I have found that this type of bird study holds just as big a thrill now as the day I banded my first bird. There is always the element of surprise, of anticipation, of realization to lure one on to further effort.

When the swallows return in the spring to the same old nest on the barn rafters, one can not help but be anxious to know whether it is the same pair that has nested there during bygone years. When placing the little band upon a new bird, one wonders to what distant clime this feathered messenger may wing its way and whether it will ever return.

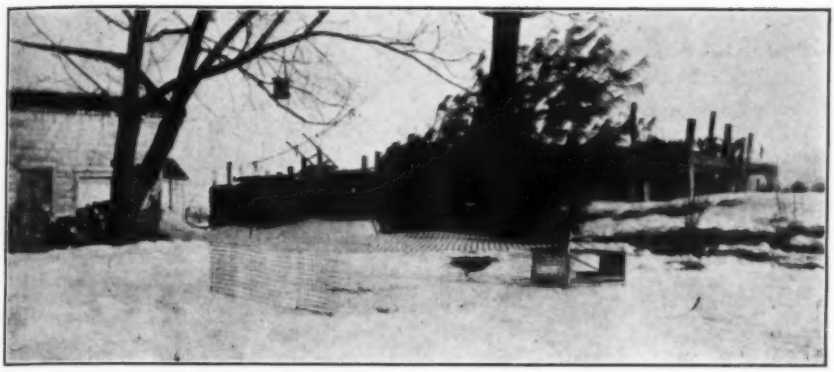
Most persons think of birds as flying only northerly or southerly in their migration. This is the general rule but not always the fact. Long-continued observations have demonstrated that a considerable east-west migration also occurs.

One starling banded in East Durham on May 20, 1933, was shot at West Allis, Wis., July 7, 1934. Another starling banded here on the same date was shot at Mystic, Conn., on February 10, 1934. Other bird banders have much more convincing returns from this east-west trend of migration. It would be interesting, indeed, to know just why two starlings banded the same day and only a few hundred feet apart go to such widely separated sections of the country.

A killdeer, banded as a fledgling here on June 7, 1932, was recovered January 10, 1933, at Milledgeville, Ga. A bluebird, banded July 15, 1931, was found dead in a church at Neuse, N. C., on April 10, 1932. Another starling banded here on January 23, 1930, was recovered on May 28, 1933, at Purling, N. Y., about 12 miles from the landing point. A barn swallow banded here as a fledgling on August 3, 1931, was found dead at East Jewett, N. Y., some 15 miles away over a mountain, on May 11, 1933.

The majority of my returns have been from the Carolinas and Georgia. Of course a large number of them, too, are from birds retaken here at their original place of banding.

Bird banding has felt the pinch of war, as have practically all other activities. Bands are obtained with difficulty. Traps are "out" or too expensive, and little time is to be had for carrying on extended banding operations. But there is also a brighter side to banding in wartime.



Drop Trap and Gathering Cage. A Starling in the Trap

This is the time when, I believe, the banders should study more intently the individual birds captured rather than attempt solely to band large numbers. I would recommend selecting a few species that are common locally. Study their habits, learn their food preferences, nesting habits and the like. Jot down the date of their arrival and departure and, in the case of winter visitants at feeding stations, the hours of their visits.

Generally speaking, the experiences undergone by a bird in acquiring a band do not frighten it permanently. For example, I captured No. 159154, an adult tree sparrow, 28 times in one season. Some birds, especially black-capped chickadees and chipping sparrows, will lie quietly for a long time if placed on their backs in the palm of one's hand.

During the spring of 1942 I had the privilege of banding a number of male red-winged blackbirds. They came to my station with an escort of cowbirds and purple grackles. The latter proved to be very elusive and difficult to trap.

Among the aristocrats of the bird world is the white-crowned sparrow. This large, handsome bird frequently associates with the white-throated sparrow. Neither of these birds remains for more than a few days during the spring and fall migration.

I have found that the cowbird may be trapped with least difficulty. Once the first individual has entered the trap, others of his mates will endeavor to crowd in with him.

Considerable interest is associated with experiments involving different kinds of baits. Sunflower seeds, chaff, crumbs and suet are all reliable. Nesting material placed under a drop trap during the breeding period sometimes induces certain species to enter. Should it be necessary to leave the traps unattended for a time they should be left baited but not set.

One of the chief causes of the decrease in numbers of our feathered friends is their inability to cope successfully with the speed of modern travel. Countless thousands of birds annually fall victims to speeding automobiles on our highways. The crushed and bleeding bodies of these unfortunate benefactors of man occur all too frequently. Such birds may, however, serve a useful purpose. For, should any readers of this article find any such

dead birds in a reasonably good condition, I would recommend sending the carcasses to the State Zoologist of our own State Museum at Albany. He will be glad to receive specimens worthy of a place in the collections there.

One thing I should especially like to emphasize. In case you should find a banded bird, either dead or alive, do not fail to report it and the number on the band to the United States Fish and Wildlife Service, Washington, D. C. Many persons seem to be under the impression that they may invite trouble in so doing and thus refrain from transmitting perhaps potentially valuable data. Neglect in the prompt and proper report of a banded bird may result in the loss of a desirable record; in this manner, too, one of the aims of bird banding will have been thwarted.

For the duration of the war at least we must make every band do its part. We should not cease banding but should band more conservatively and take advantage of every possible opportunity to make as many detailed observations as possible on each individual banded.

A Glenhaven Two-cell Trap

RED-TAILED HAWK FALSELY ACCUSED

STANLEY OLIVER GRIERSON, BEAR MOUNTAIN TRAILSIDE MUSEUMS

One cold morning in December, upon arrival at the Trailside Museums in Bear Mountain State Park, the writer was greeted by a fellow staff member, holding the very dilapidated carcass of a female American merganser, commonly known as "sawbill" or "fish duck." One wing was badly broken and most of the flesh had been picked from the neck and shoulders.

"Who is responsible for this slaughter?" I inquired. "A big red-tailed hawk," was the reply. "Two park patrolmen brought the merganser in. They were driving past a big beaver pond and saw the hawk eating something. They approached and the big bird took flight, leaving this unfinished meal. The police suggested that we do something about the red-tail. They fear it may kill all the ducks on the pond, because they assume it killed this one."

I was immediately skeptical as to how the merganser had met with death. The

red-tail, like other mousehawks, including the broad-winged, red-shouldered and rough-legged, feeds principally upon small harmful rodents — mice and rats. Like all Buteos, it is a heavy-bodied, slow-flying hawk, adapted to prolonged soaring and sailing. I wondered how a bird of prey of this type could possibly have caught a swift-flying, fast-diving duck. The red-tail usually soars with extended fan-shaped wings and tail at great heights, scanning the fields far below for some unwary mouse. When prey is sighted, it folds its wings and swoops with great speed upon the unlucky rodent. I could not picture the red-tail twisting and turning and overtaking in rapid pursuit, this fast-flying duck, as could the peregrine falcon, Cooper's hawk or the goshawk. If the duck had been feeding on the pond, it probably would have dived at the approach of a large bird. Somehow, I could not believe that this large, slow-flying beneficial mousehawk had killed a healthy merganser. A very careful dissection of the web-footed migrant might

Photo by Palisades Interstate Park-Whitford

Adult Female Red-tailed Hawk

reveal some secret, well hidden under the covering of the water-repellent feathers.

The first step was to skin the bird carefully, to reveal any possible shot holes. There were none of these wounds, however. Regardless of this, I was impressed by the absence of the thick layer of fat which most ducks have in winter. This duck's body was noticeably emaciated. Something was definitely wrong. There are abundant fish in the big beaver pond, and the merganser is a fish-eater. Why, therefore, should the duck be starving when further dissection revealed that the stomach was filled with minnows and crayfish?

I was just about to proceed to an examination of the heart and lungs, when my probe struck something metallic at the exit of the stomach opening into the intestine. Within a second the mystery was solved! Our web-footed fisherman had devoured and digested a fish, in which a fish hook had been embedded. The long-shanked fish hook had pierced the stomach wall of the duck, and had blocked the passage of the digested food, which would be assimilated in the intestine. From the rusty condition of the hook, there was no doubt that it had been lodged for some time, probably causing the duck considerable suffering.

The injured wing was also examined. Evidently it had been broken for some time for decomposition already had set in. I could not determine the cause of the fracture.

The hawk had been falsely accused. True, it had killed the duck, but not a healthy one. It had aided nature by severing the spinal cord, thereby causing immediate death to an injured waterfowl that otherwise would have suffered a prolonged and agonizing demise.

Our red-tail was pronounced innocent by the many witnesses of the autopsy, but just suppose that the dissection had revealed that the hawk had killed a perfectly healthy duck. The chances are it would have been trapped or shot, like many another hawk or owl found anywhere but in a wild life preserve like Bear Mountain State Park. But why? Every year hundreds of thousands of ducks are destroyed by hunters, who kill for the love of killing and call it "sport." The use of the duck as food is to many hunters of secondary importance, for the bird is used merely as an animated target. Some species of hawks occasionally do kill ducks, but only to satisfy their hunger. Hunters are quick to pump lead into a flock of ducks, but they are even quicker to condemn birds of prey, the most misunderstood of the Aves, when found with a rabbit, duck, pheasant or other game. Have not birds of prey as much right to hunt game as the hunter? Many times the corpse upon which a hawk is found feeding has in reality fallen before the onslaught of a human hunter, who sorely wounded or killed it and then could not locate the hapless victim. The sharp-eyed raptor, having detected the lost quarry, settled down to a free lunch.

A week later I happened to pass the big beaver pond. There in the running brook above the frozen water was a small flock of mergansers, while a quarter of a mile farther on, was a large red-tailed hawk quartering over a field, his sharp brown eyes searching for a mouse. Certainly he must have seen the ducks. Why not choose one of them? Possibly because there were no sick or injured ones in the flock. If mice did not show themselves, the red-tail knew of a chicken yard where plenty of rats that pilfered the hen food could be had for the taking.

I once dissected a large adult female red-tail, which a farmer had killed. He informed me that he had shot the bird just as it finished eating something in his hen yard. He assumed it had swallowed a baby chick. Dissection of the stomach revealed two partly digested common meadow mice. The crop contained the fragments of a freshly killed brown rat. Visible also, within the rat's stomach, was some of the cracked corn upon which the sharp-eyed rodent had been dining at the moment the needle-like talons struck. The farmer had killed a good friend.

Most hawks and owls are protected by law in New York State. Let us remember a criminal is not condemned without a trial at which all evidence is presented. Would this not be a wise policy also in the case of all wild life?

SONG BIRDS' NESTS

JULIAN BURROUGHS, WEST PARK

(*Photographs by the author*)

In November when the curtain of plant foliage has fallen, many of the birds' nests that we missed during the summer are brought into relief. The sight of these structures now open to the sky adds much to the autumn walk as we reconstruct in our minds the various types of bird activity which occurred under cover of this greenery during the nesting period.

There is the nest of the warbling vireo, for example, a little gray-brown cup high up and far out on the limb of a tall maple. Last June the male delighted us with his persistent song, the smooth, running warble rising in a joyful crescendo to a high note; it added so much to the days of early summer.

In another near-by tree is the nest of the almost silent cedar birds or waxwings, evidently built by the pair we saw so busily purloining scraps of material from the foundation of a robin's nest on a lower branch. And, resting in the fork of a bush is yet another small, gray cup-like nest, that of the yellow warbler, sometimes called the wild canary.

Among all the nests, that of the Baltimore oriole commands special attention. It is a woven bag or pouchlike structure, with the appearance of coarse gray cloth, cleverly hung from the very tip of a high, swaying branch, often from an elm limb which droops over the highway. Judging by the great numbers of these nests the Baltimore oriole must be very common.

On the other hand, we have found the Baltimore's first cousin, the orchard oriole, to be extremely rare. When I was a small boy an orchard oriole commonly built its nest in a pear tree by the garden. I only wish that the bird nested there now. The male was darker and less colorful than the male Baltimore. I well recall that father once told me that the bird did not acquire its fully adult plumage until he was four years old.

In this connection it is interesting to speculate as to whether the shallow, cup-like nest of the orchard oriole may be in any way associated with the bird's comparative scarcity while the deeper, more firmly built nest of the Baltimore oriole

John Burroughs Putting Up a House for Bluebirds

may contribute to its apparent success in the animal world. As a matter of fact, this suggests the question as to whether or not a single habit like this does influence or determine numbers in any race of wild creatures or whether other hidden factors are really responsible for the scarcity or abundance of any form of wild life.

As a partial answer we find that the Baltimore oriole in earlier times and in wilder, more unprotected localities, built much deeper, often gourd-shaped nests. Today, the nests of this bird in the trees about our houses and over the highways in sheltered and protected situations are very shallow, hence, easier to construct.

Birds do not readily or quickly change their nest-building habits. For example, the wood thrush often works a piece of white paper into the foundation of her nest; the great crested flycatcher usually introduces a cast snake skin as a part of the nest material; or, failing to discover a snake skin, readily accepts fish scales as a substitute. Originally the phoebe built its nest on a mossy, rock ledge, covering the exterior of the domicile with the same type of moss as grew on the rocks, thereby making the nest inconspicuous. In more recent years the phoebe commonly builds the same type of nest but in apparently such disadvantageous situations as porches and windows about

our homes. Although the nest is thereby made conspicuous against the often white background, perhaps the phoebe feels more secure in it. Who can say?

An interesting deviation in type of nest material used by birds in response to the material available is illustrated by the red-winged blackbird. Up the Hudson, and in fact in most places elsewhere, the red-wing uses principally marsh grass in the construction of her nest. A clump of dead loosestrife is often selected as a nesting site. As the season advances the rapidly increasing plant growth soon affords effective concealment for the nest and its occupants. Out on Long Island the red-wings, as do some other birds, build their nests mostly of the dark gray strings they pick up from drying potato sacks. The potato growers hang these empty bags on the wire fences to be washed by the rains and dried in the sun. These bags provide a ready seasonal source of nest material and the birds make the most of the opportunity thus offered.

However securely they may be placed, birds' nests are often robbed by other animals. For example, owls and red squirrels sometimes pillage the nests of Baltimore orioles while rats and even snakes may take the eggs and young of the phoebe.

Sometimes both male and female unite in nest construction while again only one of the sexes may participate in this activity. In the case of the Baltimore oriole it is the female that gathers the strings, lint and fibers and builds the pendant nest. The male in his handsome coat of orange and black provides music for the occasion.

We must be very cautious in attempting to help our feathered friends to better nesting places or nesting material. In this effort we are reminded of the classic example of Pelican island off the Florida coast where formerly large numbers of brown pelicans nested. Eventually poachers so disturbed the huge birds that the Federal Government made the island a sanctuary and erected thereon a large sign which forbade trespassing or disturbance of the pelicans. Unfortunately the birds could not read the sign and before long they abandoned the island.

Father told of a song sparrow which, after twice building and nesting in thick vines and shrubs only to have it robbed each time, finally built out on the open lawn. The incubating sparrow, unprotected from the hot July sun, seemed to suffer so much that father set up a small bush to give her shade. Though well meant this was a fatal move, for this nest, too, was robbed.

Nevertheless, what we can do to help is to put up nesting boxes for such birds as flickers, bluebirds, wrens and the like. The bluebird often lacks proper nesting sites. A box made of slabs or weathered boards or a small log hollowed out with a hole one and one-half inches in diameter near the top and placed six or eight feet above the ground on a post is just right. I always wrap a band of tin or galvanized iron about the post, letting it fit snugly at the top and flare out at the bottom. Each year the box should be cleaned; for this purpose it should be provided with a removable floor.

One will be repaid many times if he can entice a pair of bluebirds to occupy such a house. Their happy, tender notes and calls, their twinkling blue wings, to say nothing of the insects they destroy in the garden, all add pleasure and satisfaction to the sunny days of spring.

Arid Plains Exhibit

BIRD NEWS FROM THE BRONX ZOO

CLAUDE W. LEISTER, CURATOR, DEPARTMENT OF EDUCATION, THE NEW YORK ZOOLOGICAL PARK

(Photographs by courtesy of New York Zoological Society — The Zoological Park)

Ornithologists and bird students generally are continuing to make new and delightful discoveries at the Bronx Zoo in New York City following an extensive application of modern exhibition methods which were proclaimed an immediate success by visitors to the Bird House during the latter part of 1942.

The Zoological Society's collector, Charles Cordier, probably the world's most successful collector and who delivers a phenomenally large proportion of his treasures alive and in good condition, arrived in New York on October 9th with 96 birds, including 52 hummingbirds of a dozen different species, three speci-

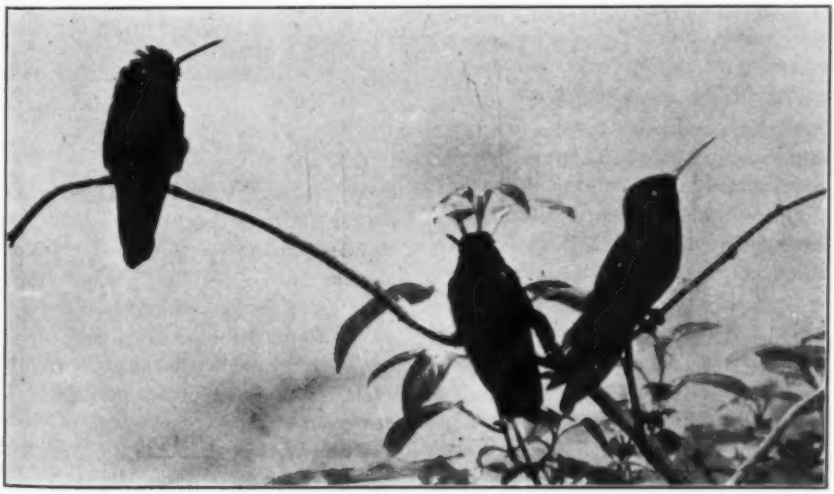
mens of the rare and almost unknown umbrella bird, and 18 magnificent Costa Rican quetzals, the royal and sacred bird of the ancient Incas. The umbrella bird has never before been exhibited alive and a number of the remaining smaller species are unknown to aviary collections.

A new idea in exhibits, called the Jewel Room, was ready for the hummingbirds in November. The visitor enters a dark room and before him are a number of brilliantly lighted compartments, each with two or three hummingbirds buzzing here and there or feeding and whose every movement shows off their glittering, iridescent plumage to good advantage against a background of flowering and tropical plants.

Here the visitor can admire and make comparisons among a number of hummingbird species, varying from the tiny Costa Rican fire-throat, at least one-third smaller than our ruby-throat, to the violet-breasted sabre-wing, which probably weighs a little more than our black and white warbler.

Nowhere else in the world can one obtain such a striking picture of "those glittering fragments of the rainbow," our hummingbirds. They are notoriously difficult to keep in captivity but these birds seem to appreciate their carefully planted surroundings as reminiscent of their jungle homeland and losses have been few.

Since the completion of the Jewel Room, five other exhibition scenes have been opened to the public. These are a Tropical American Rain Forest, a New England Garden, the Arid Plains, an Indo-Malayan Jungle and a Tropical American Jungle Stream. These exhibits are appropriately planted with vegetation native to the region portrayed or, where that is not possible, with plants that are similar in general appearance. The birds



Hummingbirds in the Jewel Room

are, of course, the identical species native to such regions and are therefore shown amid natural surroundings.

All these groups have been extraordinarily successful. The birds settled down as though they were actually at home. Within two weeks the grass finches and diamond doves in the Desert Scene were nest building. As for the average visitor, he sees for the first time, in a perfectly natural setting, strange bird species that he has read about, perhaps, but never expected to see alive. As one visitor remarked, seeing these exhibits " is better than a journey to Indo-China, because one gets a better look at the birds and there is no chance of contracting jungle fevers and tropical diseases."

BIRDING IN CENTRAL PARK

DOROTHY A. TREAT, NATIONAL AUDUBON SOCIETY

" Flick-flick-flick-flick-flick-flick . . . . . d r r u m ." Our special flicker announces day has begun in Central Park, New York City. He proclaims it loudly and for a good 15 minutes each morning from the top of a dead limb projecting above a tall, scraggly oak, near our entrance to the park. If he is still calling when we pass we are *on time* and know that we can make our complete circuit of the " Ramble," and take a turn around the lake besides. But if this oratory has ended and the flicker is intently searching for ants down on the grass below, we are late and must cut our visit short — perhaps forego the lake altogether.

Photograph by Kenneth Karcher
A Female Flicker at Home

It is May and warbler time in Central Park, and the hour shortly past daybreak. Around every turn in the path one finds a " birder " walking silently and slowly, glasses about the neck, a Peterson in the pocket, notebook in hand. " What have you seen? " each will ask in an eager whisper as you pass. It is tricky business, spotting a warbler. These tiny, exquisite " butterfly " birds are ever on the move and usually visible only as a shaking leaf somewhere overhead. It is even harder to distinguish the frail, wispy songs of some of them. The difficulties involved make the warblers a challenge, and to master them is every birder's ambition. Besides, many warblers are transients, and the time is short for getting them on your list of birds *seen this year*.

We are birders, too, fully equipped and out to greet old friends just in from the South. But we are less concentrated than some on seeing large numbers of species. We can always drop on the instant the lure of the list for some adventure of the moment — the antics of a squirrel, the

activities of some bird, the opening of buds or whatever of interest may be at hand.

After a week or two of making the rounds each morning in the park, our walk becomes marked by a series of stations and daily events. Our first stop is at a broken, leaky drinking fountain, only a short distance in. Here there is usually a row of English sparrows standing on the rim impatiently waiting a turn at bathing. It is apt to be a noisy and scrappy affair. But we never tire of watching to see who will be next to splash.

From this point it is not far to the wet meadow, a sort of parade ground for dozens of robins which hop, run, listen and then tug and pull at long angleworms. We pause here to empty our pockets of nuts brought for a squirrel family in the big horse chestnut. At this hour the squirrel family and all the neighbors are out partaking of morning vitamins contained in buds, new leaves and twigs.

Beyond the wet meadow comes a drier one, less popular with the robins. This is presided over by a brown thrasher, that dominates the entire area with his loud repeater whistle. He perches on the tip-top of the tallest tree, pouring out his mocker melody with the early sun full upon him. His long tail switches all about in surprising fashion. It seems to be on ball bearings.

At a fountain near this meadow there is usually a robin drinking, but once when we missed the thrasher's singing we found him drinking there. We crept up slowly and had a splendid view with our own eyes — no glasses needed — of his beautiful red-brown coat. We saw all the speckles on his breast and the bright yellow eyes, too.

Adjoining the thrasher estate comes the warbler territory. A maze of narrow winding paths, "the Ramble," threads through it. There are tiny ponds, a stream, lots of brush and trees of assorted sizes and kinds. Here is excitement in plenty and it lasts all the way to the lake. One warbler after another defies us to find him until we reach the yellowthroat at the bridge. He has his own version of the "witchery" theme and renders it over and over.

But one morning our warbler stretch was interrupted by continuous loud squawks and croaks coming from across the lake. We had to know what was going on and made directly for the bridge. From this vantage point we saw some 50 or more purple grackles assembled in the trees and on the grass, all making a terrific uproar and taking turns darting into a small European cut-leaf white weeping silver birch. We watched this performance for a while, then slowly approached. When we reached the tree all grackles had dispersed save one pair of staunch birds that kept their places and continued to scream. They were holding at bay a gray squirrel that had retreated outward before their piercing gaze and menacing beaks until he was clinging to the thinnest of the drooping wandlike twigs. Behind the birds we saw a nest. No need to wonder if young were in it. We sat down near-by to watch this drama. Ten minutes passed and the scene remained unchanged. Unfortunately we had to leave at this point. By hurrying we might make the office on the stroke of 9. But next day we checked up on things. The grackle family appeared serene. Apparently they had succeeded in keeping off the intruder. No tufts of fur or feathers were on the ground to

indicate a struggle either. The squirrel must have escaped unscathed.

Sometimes on warm gray mornings we sit still, turning ourselves into a couple of stones, to see how close the birds will come to us. One day when we were doing this, we watched a robin arranging his feathers. He would pull at the oil gland at the base of his tail, then pass his feathers through his beak. He was putting on a "raincoat."

On breezy days all the birds sit headed into the wind, like weather vanes. Gulls, soaring over the reservoir, ride along without a wingbeat, like glider planes. It is fun to see them use their air brakes, tipping spread tails down and wings up to cut speed before dropping down on the shallow bar to rest.

By visiting Central Park nearly every day from mid-April to June, we can see well over 100 species of birds in this one small oasis of green in the midst of the world's largest city and we are continually discovering something new to add to our store of experiences. Every week has one or more high spots, such as the time we saw an oriole building its hammock nest out over the water; a scarlet tanager bathing in a little puddle; a pair of wood ducks swimming up the terraced pools and waddling around the "portages"; hummingbirds, several of them, making a good job of sipping nectar, and one "standing still" in mid-air with the sun shining full on his gorgeous throat. On early spring mornings the park is a fascinating place. Every trip there is an adventure.

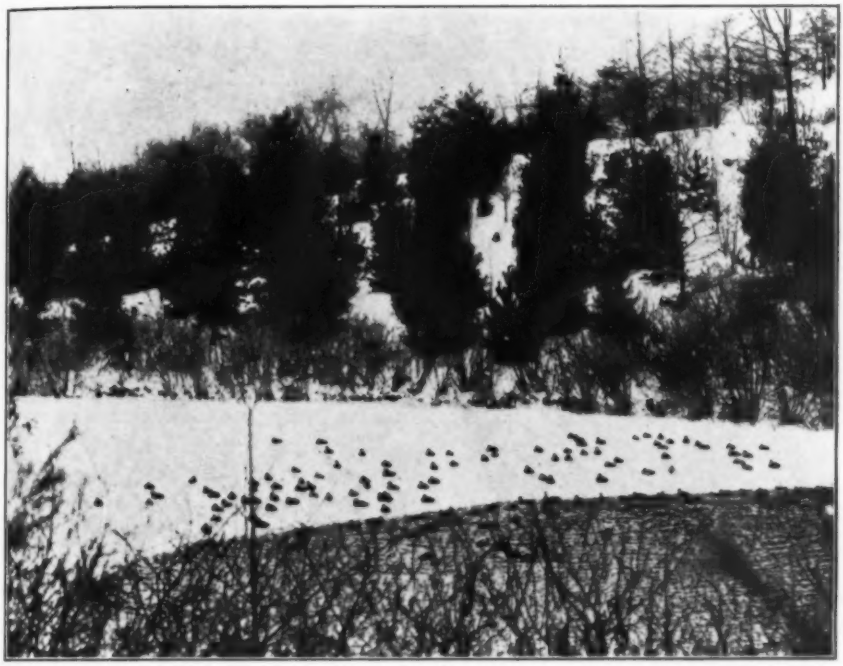
A CENTURY AFTER AUDUBON

GUY BARTLETT, SCHENECTADY

With Schenectady bird students it has almost always been a foregone conclusion that, in connection with their annual Christmas count, their report would show "minimum of open water except below dams; ponds and reservoirs ice-covered." Such conditions have always meant that winter reports of water birds in the Schenectady area have been scarce—maybe an occasional black duck, American merganser, goldeneye, or herring gull. Usually such birds, it was noted, flew up the Mohawk river in the late morning to open water at Lock 7 of the Barge canal to the east of the city and flew down the river in midafternoon.

Where the birds came from was no secret to the Schenectady bird students, and they have always known that not far to the east there were plenty of midwinter water bird possibilities. No wonder, then, that winter trips have been made each year in January and February from Schenectady to the Mohawk river below the Cohoes falls, and along the open Hudson river from the point where the Mohawk enters not far below the falls to as far north as Stillwater.

Through the Schenectady area the Mohawk river is, as a result of canalization, a series of large, slow-flowing, fast-freezing pools. Water still goes over the Cohoes falls, however, and the Hudson to the north has many relatively long stretches of fast-flowing and hence non-freezing water. It is along these open stretches that the Schenectadians find their water birds.



Photograph by Dr Bruce Large

A Winter Group of Waterfowl

It is taken for granted that the day's count will include American mergansers, goldeneyes, and black ducks by the hundreds, mallards and herring gulls by the dozens, and a variety of other species in varying quantities. Then, too, there is always the unexpected to be looked for, and frequently found. One year it may be a flock of Canada geese; another time it will be a redhead, a few hooded mergansers, a common loon or Holboell's grebe, or possibly a great blue heron. Perhaps there will be ring-billed gulls or red-breasted mergansers, and still other species of ducks and gulls are possible.

Barrow's goldeneye is probably the most interesting of the species on recent records. A male in full plumage was among the mergansers, black ducks and goldeneyes in the open water at the Stillwater bridge across the Hudson at least from February 20 to 25, 1939. It was first discovered there by H. V. D. Allen and Rudolph Stone of the Schenectady Bird Club, and in the following few days seen and studied by many other Schenectadians. All of its field marks were checked with ease, as were those of a male redhead which was likewise in the flock. For the Barrow's goldeneye the record was probably the first definite one in the vicinity in more than a half century; in the State Museum, Park Collection No. 157, there is a male taken on Green Island in Albany county on January 21, 1887.

These winter trips afford plenty of opportunity for studying closely most of the ducks. In many sections the birds can be approached without difficulty, and to distinguish the common and red-legged black ducks is not difficult.

While it is chiefly for records of water birds that the trips are made to the open Hudson, there are various other species which are to be expected. It is assumed, and it is usually true, that at least one bald eagle will be recorded — there are various tall trees along the shore of the Hudson on which an eagle can be expected to be perched. The marshes along the shore may be sheltering the relatively uncommon song sparrow, red-wing, or meadow lark. A snowy owl is not impossible out on some of the isles; hawks of various species and kingfishers course along the open water; and redpolls, siskins, goldfinches and horned larks are relatively common in the adjoining fields.

* * *

What the bird student usually does not realize when he approaches the Cohoes falls and sees the American merganser along the river shore, with the falls in the background, is that perhaps he is repeating, more than a century later, an experience of John James Audubon.

In August 1824, the year before the Erie canal was officially opened, Audubon went from Albany to Rochester by canal-boat and added several new birds to his list. The trip through Cohoes was probably slow, because of the numerous locks, and it is likely that Audubon left the boat to visit and sketch the near-by falls. At least we know that Plate 331 of Audubon's The Birds of America was painted in 1836 and shows the American merganser, or goosander as he named it, with Cohoes falls in the background. Why this is of particular interest is that the gifted Audubon seldom included scenic backgrounds in his bird plates. Among the 435 plates in the original "Elephant Folio" edition or among the additional 65 plates in his later octavo edition, relatively few of the birds are portrayed with detailed backgrounds. Only 14 of the plates contained identified backgrounds, and of these a dozen were in the South, including five each in South Carolina and Florida and one each in Louisiana and Maryland. Another plate had as its background the famous Gannet rock in the Gulf of St Lawrence. New York State contributed the remaining identified background. Although Audubon had visited many other waterfalls in the country, and had referred in his writings to the falls at Niagara and at Rochester, it remained for the falls at Cohoes to be pictured.

Bird students of today might question whether or not Audubon saw American mergansers in the summer at Cohoes, but records of those days showed that the goosander or buff-breasted sheldrake, as the American merganser was then known, bred throughout the interior from Pennsylvania northwardly. Now it is more northern as a breeding species.

Audubon's Plate 1, of the wild turkey cock, is probably the most nationally famous of his bird paintings; in New York State the most interest should center in his Plate 331. On those occasions when members of the Schenectady Bird Club have visited the Union College library to inspect the university's set of Audubon plates, it is always the picture of the American mergansers that is studied most carefully.

Picture by Edmund J. Sawyer

Wood Pewee

Know

YOUR STATE EDUCATION DEPARTMENT—XI

NEW YORK STATE MUSEUM

Operation of the New York State Museum, located on the top floor of the State Education Building in Albany, is a function of the State Education Department. Public exhibits of collections in the fields of art, history, industry and in the natural resources of the State draw thousands to the Museum each year. During peacetimes, entire classes are brought to the Museum from many sections of the State to get an understanding of their State, obtainable in no other way.

While the law establishing the Museum provides that "all specimens and collections, works of art, objects of historic interest and similar property appropriate to a general museum, if owned by the State and not placed in other custody by a specific law, shall constitute the State Museum," many other activities are carried on by the Museum. It serves primarily as a scientific or fact-finding organization, conducting surveys and studies of natural and human resources that fall within its field. On special inquiries, timely investigations are undertaken to assist industry or other groups in establishing mines, waterworks or camps, or in meeting such problems as the challenge of mosquito control or in studying the wild life of the State.

Contributing to this regular or special scientific work are the State Geologist, the State Paleontologist, the State Botanist, the State Entomologist, the State Zoologist and the State Archeologist, plus a staff of temporary specialists varying with the work in hand.

The results of these investigations are published either as technical bulletins or as popular handbooks, both of which help to give the people of the State an insight into the history and resources and the accomplishments of artists and artisans in the State.

Meanwhile, the State Museum is accumulating an ever-expanding collection of materials of lasting interest and significance but is prevented from exhibiting more of it, except in special presentations, because of lack of display space. Thus while the articles, many of them irreplaceable, are protected from the ravages of time, they are available for inspection only to scholars or scientists making special studies.